

AMENDMENTS TO THE CLAIMS

Please cancel claims 1-7, and add new claims 8-27, as follows:

Claims 1-7 (Cancelled).

Claim 8 (New) A honeycomb filter comprising an aluminum titanate sintered product obtained by a process comprising firing at a temperature of 1,250-1,700°C a raw material mixture comprising:

100 wt. % of a first mixture comprising TiO₂ and Al₂O₃ in a molar ratio of 40-60/60-40; and 1-10 wt. % of a second mixture comprising: an alkali feldspar according to the formula (Na_yK_{1-y})AlSi₃O₈, wherein 0 ≤ y ≤ 1; and a component selected from the group consisting of an oxide having a spinel structure comprising Mg and/or MgO, MgO and a precursor compound comprising Mg that is converted to MgO by firing.

Claim 9 (New) The honeycomb filter according to claim 8, wherein the second mixture is present in an amount of 3-7 wt. %.

Claim 10 (New) The honeycomb filter according to claim 8, wherein 0.1 ≤ y ≤ 1.

Claim 11 (New) The honeycomb filter according to claim 8, wherein 0.15 ≤ y ≤ 0.85.

Claim 12 (New) The honeycomb filter according to claim 8, wherein the second mixture comprises the alkali feldspar and the component in a weight ratio of 20-60/80-40.

Claim 13 (New) The honeycomb filter according to claim 8, wherein the second mixture comprises the alkali feldspar and the component in a weight ratio of 35-45/65-55.

Claim 14 (New) The honeycomb filter according to claim 8, wherein the honeycomb filter has a wall thickness of 0.1-0.6 mm, a cell density of 15-93 cells/cm², a partition wall porosity of 30-70 %, and a thermal expansion coefficient of at most 3.0x10⁻⁶ K⁻¹.

Claim 15 (New) The honeycomb filter according to claim 8, wherein the honeycomb filter has a wall thickness of 0.3-0.48 mm, a cell density of 15-93 cells/cm², a partition wall porosity of 40-60 %, and a thermal expansion coefficient of at most 1.5x10⁻⁶ K⁻¹.

Claim 16 (New) The honeycomb filter according to claim 8, wherein the component is the oxide having a spinel structure comprising Mg and/or MgO and is selected from the group consisting of MgAl₂O₄, MgTi₂O₄ and mixtures thereof.

Claim 17 (New) The honeycomb filter according to claim 8, wherein the component is MgO.

Claim 18 (New) The honeycomb filter according to claim 8, wherein the component is the precursor compound comprising Mg that is converted to MgO by firing and is selected from the group consisting of MgCO₃, Mg(NO₃)₂, MgSO₄ and mixtures thereof.

Claim 19 (New) The honeycomb filter according to claim 8, wherein the raw material mixture further comprises one or more agents selected from the group consisting of a sintering assistant, a binder, a pore-forming agent, a release agent, a defoaming agent and a peptizer.

Claim 20 (New) The honeycomb filter according to claim 8, wherein the raw material mixture further comprises: at least one sintering assistant selected from the group consisting of SiO₂, ZrO₂, Fe₂O₃, CaO and Y₂O₃; 0.2-0.6 wt. % of at least one binder selected from the group consisting of polyvinyl alcohol, a microwax emulsion, methylcellulose and carboxymethylcellulose; 40-60 wt. % of at least one pore-forming agent selected from the group consisting of activated carbon, coke, a polyethylene resin, starch and graphite; 0.2-0.7 wt. % of a stearic acid emulsion release agent; 0.5-1.5 wt. % of at least one defoaming agent selected from the group consisting of n-octyl alcohol and octylphenoxyethanol; and 0.5-1.5 wt. % of at least one peptizer selected from the group consisting of diethylamine and triethylamine.

Claim 21 (New) The honeycomb filter according to claim 8, wherein said firing is carried out at a temperature of 1,300-1,450°C for a period of 1-20 hours.

Claim 22 (New) The honeycomb filter according to claim 8, wherein the process further comprises, prior to said firing, pre-sintering the raw material mixture at a temperature of 500-1,000°C for a period of 10-30 hours.

Claim 23 (New) A method of cleaning an exhaust gas comprising removing solid particles predominantly comprising carbon from the exhaust gas with the honeycomb filter according to claim 8.

Claim 24 (New) The method according to claim 23, wherein the exhaust gas is a diesel engine exhaust gas of an automobile.

Claim 25 (New) An apparatus for cleaning an exhaust comprising the honeycomb filter according to claim 8.

Claim 26 (New) The apparatus according to claim 25, wherein the exhaust gas is a diesel engine exhaust gas of an automobile.

Claim 27 (New) A process for producing a honeycomb filter comprising an aluminum titanate sintered product, wherein the process comprises:

preparing a raw material mixture comprising: 100 wt. % of a first mixture comprising TiO_2 and Al_2O_3 in a molar ratio of 40-60/60-40; and 1-10 wt. % of a second mixture comprising: an alkali feldspar according to the formula $(Na_yK_{1-y})AlSi_3O_8$, wherein $0 \leq y \leq 1$; and a component selected from the group consisting of an oxide having a spinel structure comprising Mg and/or MgO , MgO and a precursor compound comprising Mg that is converted to MgO by firing;

adding to the raw material mixture one or more agents selected from the group consisting of a sintering assistant, a binder, a pore-forming agent, a release agent, a defoaming agent and a peptizer to produce a mixture;

kneading and plasticizing the mixture;

extruding the mixture into a honeycomb structure; and

firing the honeycomb structure at a temperature of 1,250-1,700°C to produce the honeycomb filter comprising an aluminum titanate sintered product.